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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Jorg Peter

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EXAMINER

CHAO, ELMER M

ART UNIT

PAPER NUMBER

3737

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/517,637	<b>Applicant(s)</b> PETER, JORG	
	<b>Examiner</b> ELMER CHAO	<b>Art Unit</b> 3737	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 22-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. Acknowledgement is made of the amendment filed 9/24/2009.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 22-41** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation “; and wherein the at least one first detector and the at least one second detector are fixedly arranged as a rigid arrangement.” The phrase “rigid arrangement” is not found in the Specifications.

#### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. **Claims 22 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. (U.S. 6,280,703 B1) in view of Nelson et al. (U.S. 4,969,175). Combs et al. teach an imaging method, comprising: simultaneously (claim 7) or alternately (claim 8) determining in vivo distributions of bioluminescent and/or fluorescent markers and radioactive markers (claim 1), wherein the distribution of the bioluminescent and/or fluorescent markers is determined by separate detection of photons having a first average energy, which are emitted by the bioluminescent and/or fluorescent markers (claim 1, part i), by at least one first detector and wherein the distribution of the radioactive markers is determined by separate detection of photons having a second average energy, which are emitted by the radioactive markers (claim 1, part ii), by at least one second detector, wherein the at least one first detector and the at least one second detector are fixedly and rigidly arranged in a specific spatial arrangement relative to each other (some determined spatial arrangement would be necessary, especially in the case of simultaneous detection).

Combs et al. teach the limitations as discussed above but fail to explicitly teach the detectors placed at identical projection angles. However, in the field of multiple energy x-ray imaging, Nelson et al. teach imaging at two different energy levels at the same projection angle (col. 4, lines 38-42). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to perform both determine the distributions of the markers at the same projection angle in order to properly compare the detected energies relative to the part being imaged (for motivation see col. 4, lines 38-42).

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6. **Claims 23 and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al. as applied to claim 22 above, and further in view of Rubinstein et al. (U.S. 6,757,554 B2). Combs et al. and Nelson et al. teach the limitations as discussed above but fail to explicitly teach a layer used to transmit or reflect photons according to their energy level. However, in the field of fluorescent imaging, Rubinstein et al. teach providing a filter (col. 8, lines 43-50). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to provide a layer for each the detectors as it is functionally equivalent to a filter in order to minimize background emissions and only allow the intended range of emissions energies to pass (for motivation see col. 8, lines 45-50).

7. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al. as applied to claim 22 above, and further in view of Bryan et al. (U.S. 6,232,107 B1). Combs et al. and Nelson et al. teach the limitations as discussed above but fail to explicitly teach using green fluorescent proteins. However, in the field of using in-vivo markers, Bryan et al. teach using green fluorescent proteins (Para [0025]). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to include using fluorescent proteins in order follow the migration and colonization progresses of tumor cells (for motivation see Para [0025] second and third sentences).

8. **Claim 26** is rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al. as applied to claim 22 above, and further in

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view of Turner (U.S. 2003/0101466 A1). Combs et al. and Nelson et al. teach the limitations as discussed above but fail to explicitly teach detecting Indium-111 using SPECT. However, in the field of using radioactive markers, Turner teaches using SPECT to detect Indium-111 among other listed radioactive markers (Para [0027], first sentence, second to last sentence). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use SPECT imaging to detect Indium-111 in order to detect cancer cells (for motivation see abstract).

9. **Claims 27** is rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al., further in view of Turner as applied to claim 22 above, and further in view of Voirin et al. (U.S. 6,312,961 B1). Combs et al., Nelson et al., and Turner teach the limitations as discussed above but fail to explicitly teach the fluorescent markers being detected by a CCD camera.

However, in the field of fluorescent imaging, Voirin et al. teach a CCD array to detect fluorescent emissions (col. 6, lines 10-39). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to use a CCD array to detect fluorescent emissions in order to achieve a large enough number of pixels (for motivation see col. 6, lines 24-29).

10. **Claims 29 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al., further in view of Turner, further in view of Voirin et al., and further in view of Rubinstein et al. (U.S. 6,757,554 B2).

Regarding **claims 29 and 30**, Combs et al., Nelson et al., Turner, and Voirin et al. teach the limitations as discussed above but fail to explicitly teach a layer used to transmit or reflect photons according to their energy level. However, in the field of fluorescent imaging, Rubinstein et al. teach providing a filter (col. 8, lines 43-50). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to provide a layer for each the detectors as it is functionally equivalent to a filter in order to minimize background emissions and only allow the intended range of emissions energies to pass (for motivation see col. 8, lines 45-50).

11. **Claims 31-34 and 36-41** are rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al., further in view of Turner, further in view of Voirin et al., further in view of Rubinstein et al. as applied to claim 29 above, and further in view of Rabito et al. (U.S. 5,647,363). Combs et al., Nelson et al., Turner, Voirin et al., and Rubinstein et al. teach the limitations as discussed above but fail to explicitly teach the different configurations and arrangements of the SPECT and CCD cameras. However, in the same field of endeavor, Rabito et al. teach a configuration of four detectors (see fig. 8), wherein the detectors can be radioactive and fluorescent detectors (col. 3, lines 24-37). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to include using different configurations of the SPECT and CCD cameras as a matter of design choice which depends on the area being imaged or the information being acquired.

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12. **Claim 35** is rejected under 35 U.S.C. 103(a) as being unpatentable over Combs et al. in view of Nelson et al., further in view of Turner, further in view of Voirin et al., further in view of Rubinstein et al. as applied to claim 29 above, further in view of Rabito et al. as applied to claim 34 above, and further in view of Matsuzaki et al. (U.S. 2002/0042566 A1). Combs et al., Nelson et al., Turner, Voirin et al., and Rubinstein et al., and Rabito et al. teach the limitations as discussed above but fail to explicitly teach using a position sensor. However, in the field of medical imaging, Matsuzaki et al. teach using a position sensor (Para [0096]). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention to modify to include a position sensor in order to track a subject (for motivation see Para [0096]).

### ***Response to Arguments***

13. Applicant's arguments filed 9/24/2009 have been fully considered but they are not persuasive.

Regarding Applicants' arguments with respect to the newly amended limitation "; and wherein the at least one first detector and the at least second detector are fixedly arranged as a rigid arrangement", Examiner notes that such a limitation is not effective in overcoming the current interpretation of the prior art. Independent claims 22 and 28 formerly and currently recite "wherein the at least one first detector and the at least one second detector are fixedly arranged in a specific spatial arrangement relative to each other", was previously and currently shown to be taught by the combination of Combs et al. (claim 1, part i & ii) and

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because since some pre-determined spatial arrangement between would be necessary, especially in the case of simultaneous detection. Additionally, it can be argued that some sort of arrangement between the two detectors is considered at the very least obvious to one of ordinary skill in the art due to the fact that both detectors must be placed somewhere in the room and constantly and randomly moving the detectors for no reason would be a waste of energy with no reasonable purpose to say the least. Merely adding the limitation stating that the first and second detectors are now in “a rigid arrangement” does not serve to overcome the rejection mainly because it can easily be argued that a fixed arrangement would also be rigid, so long as the setup is rigid enough to maintain the fixed arrangement during the operation. Even in view of the Specification, which lacks any type of support for the word “rigid”, there does not seem to be any suggestion that the first and second detectors must be a single entity (or in other words fully integrated). Therefore, a narrower interpretation of the claim limitation “rigid arrangement” is not warranted, much less supported at all (see the above 112 rejection).

Applicants specifically argued that “such a fixed arrangement is only required if the arrangement of detectors to the object is critical, e.g., for imaging as in the claimed invention” (see at least page 9, paragraph 3, Arguments). Examiner notes that the criticality of the arrangement is considered irrelevant given that the claim language merely sets for that the present invention’s two detectors are in some fixed arrangement, to which the Examiner insists, as explained in the preceding paragraph, has already been met by the prior art.

***Conclusion***

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELMER CHAO whose telephone number is (571)272-0674. The examiner can normally be reached on Mon-Thurs 11am-9pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571)272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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